United States General Accounting Office

GAO

Fact Sheet for
the Honorable Jim Slattery
House of Representatives

March 1986

AIR POLLUTION

EPA's Efforts to Reduce and End the Use of Lead in Gasoline

GAO/RCED-86-80FS

UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

RESOURCES, COMMUNITY
AND ECONOMIC DEVELOPMENT
DIVISION

March 12, 1986

B-222019

The Honorable Jim Slattery
House of Representatives

Dear Mr. Slattery:

As requested in your July 30, 1985, letter and our subsequent discussions with your office, we obtained information on the Environmental Protection Agency's (EPA's) efforts to substantially reduce and possibly end the use of lead in gasoline and the extent to which EPA considered the impact of using gasoline with lower levels of lead on agricultural machinery. This fact sheet summarizes the results of our work discussed during the briefing with your office on December 6, 1985.

In March 1985, EPA issued final rules to reduce the amount of lead allowed in gasoline to 0.10 grams per leaded gallon on January 1, 1986. However, EPA did not specifically determine the impact this low-lead standard would have on the nation's farm equipment. In the notice of proposed rulemaking which preceeded the final rule, EPA reported on the results of three motor vehicle studies to support its lead phasedown program. EPA concluded on the basis of these studies that engines designed to operate with leaded gasoline needed between 0.04 and 0.07 grams of lead per gallon. Therefore, EPA concluded that the standard of 0.10 grams per leaded gallon would provide a sufficient amount of lead to prevent valve damage in engines designed to operate with leaded gasoline.

EPA's long-term objective is to eliminate the use of lead in gasoline. EPA relied on data generated by the U.S. Army and U.S. Postal Service. Both organizations had switched large fleets of vehicles from leaded to unleaded gasoline and experienced no significant mechanical or operating problems as a result of using unleaded gasoline. Accordingly, in a related March 1985 notice, EPA requested comments on a proposal to ban lead in gasoline as early as January 1, 1988.

In response to concerns expressed by the Congress, the Department of Agriculture, and the farm community about the impacts that the low-lead standard and the possible ban of leaded gasoline might have on farm equipment, EPA agreed in October 1985

to study engines used in farm equipment and to reevaluate the standards based on that information. Efforts are underway to develop this information, and EPA expects that by January 1987, it will determine whether the low-lead standard needs to be changed to prevent adverse effects on farm machinery and what the final action should be on its proposal for a ban on lead. Moreover, the Food Security Act of 1985 requires that a study of farm equipment be performed jointly by EPA and the Department of Agriculture.

Part I to this letter provides more detailed information on EPA's lead phasedown efforts.

We performed our review during October through December 1985. To obtain information on EPA's regulatory process for its lead phasedown program, we interviewed EPA officials responsible for developing the regulations and reviewed key documents, including regulatory and flexibility analyses, appropriate notices of proposed and final rulemaking, and selected public comments. We also interviewed and obtained related documentary material from U.S. Department of Agriculture, National Council of Farmer Cooperatives, and American Farm Bureau Federation officials.

We did not obtain official agency comments on this fact sheet; however, we did discuss the contents with EPA officials and have included their comments where appropriate.

Unless you publicly announce its contents earlier, we plan no further distribution of this fact sheet until 30 days from the issuance date. At that time, we will send copies to the Administrator of EPA and other interested parties upon request. Further information on this fact sheet can be obtained by calling (202) 275-5489.

Sincerely yours,

Hugh J. Wessinger

Hugh J. Wessinger
Senior Associate Director

PART I

ENVIRONMENTAL PROTECTION AGENCY'S (EPA'S)

LEAD PHASEDOWN RULES

BACKGROUND

Since the 1920's, petroleum refiners have added lead to gasoline as a relatively inexpensive way of boosting octane. In the late 1960's and early 1970's gasoline was typically leaded at about 2.3 grams per leaded gallon (gplg). The lead also provided a crucial engine valve lubricating function that prevented a mechanical damage problem called valve recession in vehicles and engines not designed with hardened valve seats to operate on unleaded fuel.

The Clean Air Act, as amended in 1970, authorized EPA to control or prohibit the manufacture or sale of any fuel or fuel additive whose emission products cause or contribute to air pollution reasonably anticipated to endanger the public health or welfare, or to significantly impair the performance of any emission control device or system in general use. Under that authority, EPA has attempted since the early 1970's to minimize the adverse health and environmental effects associated with lead in gasoline, which include both the direct health effects associated with exposure to lead and the excess emissions of other pollutants caused by the misfueling of leaded gasoline in vehicles designed for unleaded fuel. EPA's original rulemaking in 1973 reduced lead levels gradually, reaching 0.50 grams averaged over all gasoline (both leaded and unleaded) in 1979. In 1982 it changed the basis of the standard from all gasoline to leaded only and set the standard at 1.10 gplg. Even with the new standard, however, total lead usage did not decline as rapidly as the agency expected it would.

For example, when EPA set the standard of 1.10 gplg in October 1982, it projected that lead usage in 1983 would be 46.96 billion grams. EPA's actual gasoline and lead use data, however, showed that total lead usage during 1983 was 51.83 billion grams, 4.87 billion grams or 10.4 percent more than had been predicted. According to EPA, this higher-than-expected lead usage resulted from a combination of factors, including improper use of leaded gasoline in newer vehicles certified for use of unleaded gasoline only, more total gasoline demand than expected, and longer retention and greater use of older vehicles that could legally use leaded gasoline.

EPA'S PROPOSALS IN 1984 FOR FURTHER LEAD PHASEDOWN

In August 1984 EPA issued proposals for further actions to reduce the amount of lead allowed in gasoline. For the short-term, EPA proposed a 1986 standard of 0.10 gplg, or

possibly a phased-in approach of gradual reductions to reach that standard on January 1, 1988. In the proposal EPA said that vehicles and engines designed to operate with leaded gasoline needed between 0.04 and 0.07 grams of lead per gallon and that the proposed low-lead standard of 0.10 gplg would fulfill those minimum requirements.

EPA held a 2-day public hearing on its proposals later in August 1984, and hundreds of written comments were submitted to EPA by the close of the comment period on October 1, 1984. Some commenters expressed concern that EPA had not adequately considered the status and needs of gasoline-powered farm equipment, and questioned whether the proposed standard of 0.10 gplg would fully protect engines designed for leaded gasoline.

EPA'S LEAD PHASEDOWN REGULATIONS IN 1985

EPA issued its regulation for a new low-lead standard in March 1985 and tried to lower the cost burden and provide extra flexibility for the gasoline industry in meeting the new standards. The revised rule was to reduce the existing 1.10 gplg standard to an interim standard of 0.50 gplg on July 1, 1985, and to a low-lead standard of 0.10 gplg on January 1, 1986. EPA provided a "banking" regulation for the 3-year period of 1985 through 1987. It allowed refiners and importers to produce and sell leaded gasoline in 1985 at a lower concentration of lead per gallon than the applicable 1.10 gram and 0.50 gram standards, and "bank" their lead-gram credits thus earned. They could then use their lead credits--or transfer them for other refiners' or importers' use--as standards are enforced from April 1, 1985, through December 31, 1987. Their use of credits entail producing gasoline with more lead than the 1.10 gram standard in the second quarter of 1985, the 0.50 gram standard in the third and fourth quarters of 1985, and the 0.10 gram standard during 1986 and 1987. EPA believes that while providing the lower cost burden and more flexibility for refiners and importers, the banking mechanism does not increase the total lead usage that would otherwise be allowed during the 1985-87 period.

THE STATUS OF EPA'S RULEMAKING PROCESS TO ELIMINATE LEAD

In its August 1984 proposed rules, EPA proposed two alternative approaches to meet its long-term objective to eliminate the use of lead as a gasoline additive:

--No further regulatory action beyond the 0.10 gplg standard; allow the marketplace to eliminate the use of lead as demand drops and price rises create incentives for new designs and other additives and alternatives.

--An outright ban on the future use of lead as a gasoline additive, specifically by about 1995. EPA said this approach would assure that the use of lead is stopped by some specific future date and hence would create a strong incentive for developing alternative engines and additives. EPA recognized that picking an appropriate date would be difficult because not providing enough time could leave some vehicle owners with problems, if other solutions are not found.

Some commenters to EPA on the proposals to eliminate lead completely stated that action to eliminate lead would likely cause damage to thousands of pieces of farm equipment expected to be in use for many years. They urged EPA to study the impacts that a complete ban on lead would have on the agricultural sector before taking action to eliminate lead in gasoline.

For the two alternative approaches it had proposed in August 1984 to end the use of lead in gasoline, EPA did not take any final action. Instead, it provided updated information on the adverse health effects of lead and on the continuing widespread and persistent misfueling of vehicles. EPA also cited the experience of the U.S. Army and U.S. Postal Service[1] from switching in-use vehicle fleets from leaded to unleaded gasoline and experiencing no significant mechanical or operating problems. Based on that information, EPA proposed a third alternative approach to end the use of lead at an earlier date; an outright ban on the sale of leaded gasoline as early as January 1, 1988. EPA said that if this alternative were promulgated, the January 1, 1995, date in its August 1984 proposal would be changed to January 1, 1988.

In its March 1985 notice, EPA asked for additional public comments on the updated information and its additional proposed alternative for eliminating lead usage at an earlier date. It said it would later announce the date(s) for a public hearing, and it extended the public comment period to at least 30 days after a public hearing is held.

EPA AGREED IN 1985 THAT BETTER DATA ON FARM EQUIPMENT IS NEEDED

While EPA's files show there is widespread support for its objective to reduce levels of lead in the environment, there is also much concern over the adequacy of the new low-lead standard to protect some engines from mechanical damage, as well as concern over a possible no-lead standard based on EPA's

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[1]EPA cited in the updated information a series of reports by the Army Fuels and Lubricants Research Laboratory and data provided by the U.S. Postal Service.

stepped-up timetable to January 1, 1988. Nevertheless, EPA believed that the vehicle studies it relied on provided strong support for its conclusions leading to the low-lead standard and its proposal to ban lead completely.

The extent of the concern, however, as evidenced by the many inquiries and comments by committee chairmen and members and farm community groups, caused EPA to conclude in October 1985 that it needed better data on engines used in certain types of farm equipment. EPA replied to congressional inquiries and the American Farm Bureau Federation in October 1985 that it would conduct a study of the effects of low-lead and unleaded gasoline on farm equipment. It then started designing a study in cooperation with the U.S. Department of Agriculture (USDA) and other interested experts in the agricultural community. It expects to begin the study in the spring of 1986 and have it completed by January 1987. EPA also said that it would rely on the study results to make any change to the low-lead standard needed to prevent adverse effects on farm machinery and that no final action would be taken on its alternative lead ban proposals until the study results are complete.

Another factor that EPA addressed was the issue of whether the new 0.10 gplg standard would adequately protect engines after it became effective on January 1, 1986. EPA said that the lead "banking" program it put in place for 1985 through 1987 would provide leaded gasoline during 1986 and 1987 with average lead levels higher than the standard, which would adequately protect farm equipment from damage. According to EPA officials, the lead banking data from early 1985 indicated that refiners would bank enough credits in 1985 to produce leaded gasoline at an average lead level of 0.2 to 0.3 grams per leaded gallon from January 1, 1986, to January 1, 1988.

In addition to EPA's earlier decision to do a farm equipment study and its explanation of the expected results of its banking program, specific legislation was enacted in December 1985 on the requirements and time frame for a study to be conducted jointly by EPA and USDA and for a report to the President and the Congress. Section 1765 of the Food Security Act of 1985 (Public Law 99-198, December 23, 1985) also requires EPA to monitor the actual and average lead content of leaded gasoline for each 3-month period during 1986 and 1987 and to report to the Congress and provide a notice in the Federal Register if the actual lead content falls below an average of 0.2 grams.

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